

B. WASTEWATER TREATMENT OVERVIEW

The purpose of this section is to identify the surface impoundments that are within the scope of this study, and to provide an overview of the sequence and purpose of treatment, storage, and/or disposal units used in your wastewater treatment system.

Please review all surface impoundments that were used to manage nonhazardous waste at your facility in the period between June 1, 1990 and today (whether or not they are still in use). For the purpose of this questionnaire, nonhazardous waste means waste that is not classified as hazardous waste according to the federal regulations at 40 CFR Part 261.

The surface impoundments that meet these two criteria (in use at some point since June 1, 1990, and used to manage nonhazardous waste) are the surface impoundments that are of interest. To determine exactly which surface impoundments are within the study's scope, you must identify your surface impoundments using a naming or numbering system.

Question B1 requests this information. Question B2 requests that you determine whether these nonhazardous waste surface impoundments are within the study's scope. The remaining questions in this section request information on groundwater uses near your facility, activities taking place near your in-scope surface impoundments, your local climate, and information about the subsurface features near your in-scope surface impoundments.

B1. Review or Provide Wastewater Flow Diagram

B1a. On the attached page is a flow diagram from your NPDES permit or permit application (if one exists and is publicly available). Is this diagram correct and current?

☐ Yes

☐ No If you answered "No," either annotate the diagram to indicate the correct or current information, or provide a new diagram.

☐ No diagram provided If a diagram is not provided, please provide one that represents the sequence of your wastewater flows and sludge management practices.

B1b. On the process diagram discussed in B1a., please make the following notations:

- *Please label each stage of the wastewater management process (e.g., “secondary treatment,” or “settling”) and use a unique name, number or number/letter combination to identify each wastewater and sludge management unit. For surface impoundments that are part of a group of impoundments that are constructed with dikes or berms in common, are the same size, and operate in the same manner, identify each impoundment separately. If a wastewater flow diagram already exists that names or numbers the wastewater units (for example, your state permit application), use those existing names, numbers, or number/letter combinations.*
- *Please assign a name, number or number/letter combination to each off-site sludge management facility. Note: We will use the names, numbers, or number/letter combinations you assign throughout this questionnaire.*

B2. Determine your in-scope surface impoundments.

Using the names, numbers, or number/letter combinations from question B1, complete the following table identifying all **nonhazardous** waste surface impoundments at your facility. If you have more than ten nonhazardous waste surface impoundments, photocopy the table below before completing it.

- If you have a RCRA permit that specifically identifies a particular surface impoundment and establishes operating, closure, and/or postclosure requirements for it, do NOT include that surface impoundment in the table.
- If you have a RCRA Part A permit application that specifically identifies a particular surface impoundment, do NOT include that surface impoundment in the table.

Instructions for completing table

Column 1: Enter the name, number, or number/letter combination from Question B1.

Column 2: While you were managing nonhazardous waste in this impoundment, did the contents of this impoundment have an average pH of 3.0 or less, calculated on a thirty-day average basis? If you answered "Yes," skip to Column 5.

Column 3: While you were managing nonhazardous waste in this impoundment, did the contents of this impoundment have an average pH of 11.0 or more, calculated on a thirty-day average basis? If you answered "Yes," skip to Column 5.

Column 4: Review the list of chemical constituents in Appendix 3. While you were managing nonhazardous waste in this impoundment, were any of the Appendix 3 chemical constituents present in this impoundment?

Column 5: If you answered "Yes" in either column 2, column 3, or column 4, place a "Y" in this column. If you answered "No" in column 2, and column 3, and column 4, place a "N" in this column.

QUESTION B2: DETERMINATION OF IN-SCOPE SURFACE IMPOUNDMENTS				
1	2	3	4	5
Impoundment Identifier	pH < 3?	pH >11?	Appendix 3 constituents?	In-scope?

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

B3. Annotated Topographic Map

Attached is a topographic map of the area in which we believe your in-scope surface impoundments exist.

If this map does not cover the area in which your in-scope surface impoundments exist, obtain a map that does cover the area or areas in which your surface impoundments exist. Your replacement map must be at a scale of 1:25,000 or larger, and must indicate the scale, orientation to north, and latitude and longitude.

If the topographic map we provided does cover the area in which your in-scope surface impoundments exist, but you prefer to use an alternate map, you may use your own alternate, provided it is at a scale of 1:25,000 or larger, and it indicates scale, orientation to north, and latitude and longitude.

Instructions for annotating map

- *Draw the perimeter(s) of your in-scope surface impoundment(s) (those you identified with a "Y" in column 5 of question B2) and label them with the name(s), number(s), or number/letter combination(s) you assigned to them in question B1.* ☐
- *Indicate your facility's property boundary and clearly label it "PROPERTY LINE."*
- *Identify all residences and schools that are not already depicted on the map, and that are located within two miles of the perimeter of any of your in-scope impoundments. Label each residence with an "R" and each school with an "S."* ☐
- *Indicate all known wells within two miles of the perimeter of any of your in-scope impoundments, marking the location of each well with a triangle. Label each triangle with one of the following uses: "public well," "private drinking water well," "irrigation," "livestock watering," or, if you don't know its use, "use unknown." Label each triangle with a unique number followed by the letter W (for example, 1W, 2W, 3W, etc.)* ☐

Please include the map with your other responses to this questionnaire when you return it to us.

Nearby Human Activities

B4. Identify which of the following activities occur within two miles of the perimeter of any of your in-scope surface impoundments:

☐

(Check all that apply)

☐ Farming

☐ Hunting

☐ Fishing

☐ Boating

☐ Swimming

B5. If you answered “fishing” in question B4, provide the name(s) of the surface water body or surface water bodies in which fishing occurs:

☐

Use the surface water body(ies) name(s) that are indicated on the map you used for question B3. If the map gives no name for a surface water body in which fishing occurs, write the name you use for that surface water body next to it on the map for question B3, and use your name for it here.

fishing occurs in _____

B6. If you answered “boating” in question B4, provide the name(s) of the surface water body or surface water bodies on which boating occurs:

☐

Use the surface water body(ies) name(s) that are indicated on the map you used for question B3. If the map gives no name for a surface water body on which boating occurs, write the name you use for that surface water body next to it on the map for question B3, and use your name for it here.

boating occurs on _____

B7. If you answered “swimming” in question B4, provide the name(s) of the surface water body or surface water bodies in which swimming occurs:☐

Use the surface water body(ies) name(s) that are indicated on the map you used for question B3. If the map gives no name for a surface water body in which swimming occurs, write the name you use for that surface water body next to it on the map for question B3, and use your name for it here.

swimming occurs in _____

Climatic Conditions**B8. Use of Meteorological Data**☐

EPA plans to use meteorological data from the National Climatic Data Center for the National Oceanic and Atmospheric Administration (NOAA) meteorological station nearest your facility to support fate and transport modeling of contaminants to potential receptors. In most cases, we believe these data will provide an accurate means of estimating meteorological conditions at your facility. In some cases, however, steep terrain, microclimate effects, or the proximity of buildings may make data from the nearest station inaccurate for a given facility.

Your facility’s nearest NOAA station is: [Will be preloaded]

Would the use of meteorological information (rainfall, wind speed, wind direction) from the nearest NOAA meteorological station provide an accurate representation of meteorological conditions near your in-scope surface impoundments?

☐ Yes

☐ No If you answered “No” and you are concerned about the accuracy of the meteorological information we plan to use, please contact the technical assistance telephone number listed at the bottom of this page for instructions on providing alternate information.

Subsurface Characteristics

This section asks for site-specific information relating to the subsurface (soils, fill materials, geologic materials, and groundwater) beneath your facility. In Section C you will provide liner information separately for each impoundment. The information you provide in this section will be used to model subsurface transport of water and chemicals. The subsurface characteristics provided here should apply to all in-scope impoundments you identified in question B2. If the subsurface characteristics are significantly different beneath different impoundments, please answer questions B10 and B11 separately for each impoundment.

B9. Are the subsurface characteristics similar for all in-scope impoundments at your facility?

☐

☐ Yes — Continue to question B10

☐ No If you answered "no" to question B9, please review questions B10 and B11 to determine how many copies of those pages you will need to make in order to answer questions B10 and B11 for the in-scope surface impoundments that have different subsurface characteristics. **Before you go on**, make extra copies of questions B10 and B11 for the first in-scope surface impoundment. Write the appropriate surface impoundment names, numbers, or number/letter combinations from question B2 in the upper right hand corner of each page.

As an alternative to answering Questions B10 through B13 in the format requested, you may attach to this questionnaire equivalent information that is in a different format. The information you attach may include reports of studies conducted at your facility that describe the site-specific subsurface characteristics at your impoundment(s) (e.g., the geologic and hydrogeologic setting at your facility). The information you attach also may include graphics (e.g., cross sections and stratigraphic columns). Please be aware that if the information you provide does not respond fully to Questions B10 through B13, we may contact you to obtain the missing information.

☐ **Please check here if you have attached information to this questionnaire that responds in whole or in part to Questions B10 through B13.**

B10. Characteristics of Soil, Fill, and Geologic Materials Beneath your Surface Impoundments

This question asks you to describe - in table format - the characteristics of the soil, fill, and geologic materials beneath your in-scope surface impoundments. The question requests that you identify and describe each subsurface layer, unit, formation or zone beginning with the one closest to land surface. Question B11 will request more detailed information about some of the layers, units, formation, or zones you identify in this question.

Instructions for completing table:

Please enter "UNK" for any information that is unknown.

- Column 1: Please number the subsurface layer, unit, formation, or zone, starting with the land surface.
- Column 2: Please provide a brief description of the subsurface layer, unit, formation, or zone (e.g., sand, silt, clay, sandy-silt, sand and gravel fill, shale, granite, limestone, sandstone, etc.).
- Column 3: What is the thickness of the subsurface zone (specify units)?
- Column 4: What is the depth from land surface to the top of the layer, unit formation or zone (specify unit)?
- Column 5: What is the hydraulic conductivity of the subsurface layer, unit, formation or zone (specify units)?
- Column 6: What is the effective porosity of the subsurface layer, unit, formation or zone (vol/vol)?
- Column 7: What is the bulk density of the subsurface layer, unit, formation, or zone (specify zone)?
- Column 8: What is the percent of organic carbon in the subsurface layer, unit, formation, or zone?

Facility Number: _____

B-10

QUESTION B10: SUBSURFACE CHARACTERIZATION												
1 Subsurface Layer, Unit, Formation, or Zone Number	2 Brief Description	3 Thickness		4 Depth from Land Surface to Top of Layer, Unit, Formation, or Zone		5 Hydraulic conductivity		6 Effective Porosity (vol/vol)	7 Bulk Density		8 Percent Organic Carbon (%)	Check box if the information is claimed CBI
		value	units	value	units	value	units		value	units		
1 (Land Surface)												<input type="checkbox"/>
2												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>

If you have questions, call the RCRA, Superfund & EPCRA Hotline at 1-800-424-9346.

B11. Characteristics of Saturated Zones and Aquifers Beneath Your Surface Impoundments

This question asks you to describe in greater detail the characteristics of certain subsurface layers, units, formations or zones you identified in Question B10 that also are aquifers or saturated zones. Multiple aquifers or saturated zones may exist at your site. We want to obtain information about the uppermost saturated zone below your surface impoundments, in addition to any other aquifers that are used to supply water to homes, businesses, and communities. For the purposes of responding to this questionnaire, an aquifer is a geologic formation, group of formations, or portion of a formation that yields useable quantities of water to wells or springs. A saturated zone is a subsurface zone in which the pore spaces are full of water, but although the zone could supply water to a well or spring, the quantity of water supplied is insufficient for domestic use. The uppermost saturated zone or aquifer is the saturated zone or aquifer that is closest to land surface. The following questions request information about both aquifers and saturated zones.

Instructions for completing table:

Please complete the following table, to the extent the data requested are available for:

- *the uppermost saturated zone or aquifer beneath your in-scope impoundments*
- *all other saturated zones or aquifers beneath your in-scope impoundments that are used by homes, businesses or communities within a 2-mile radius as sources of water (e.g., for drinking, livestock watering, irrigation, or other purposes).*

Instructions for completing table (continued):

Please enter "UNK" for any information that is unknown.

- Column 1: What is the name of the saturated zone or aquifer? If there is no commonly recognized name, use a descriptive name (e.g., alluvial, surficial, uppermost, bedrock)*
- Column 2: List the number(s) from Question B10, Column 1, that correspond to the subsurface layer(s), unit(s), formation(s), or zone(s) in which the aquifer or saturated zone is located.*
- Column 3: Is the groundwater potable? Enter "Yes," "No," or "UNK." For the purposes of this questionnaire, "potable" means "of a quality suitable for drinking" without regard for groundwater quantity or yield.*
- Column 4: List the direction(s) in which groundwater flows in the saturated zone or aquifer, using "N" for north, "NE" for northeast, "E" for east, "SE" for southeast, "S" for south, "SW" for southwest, "W" for west, or "NW" for northwest). For each direction that you listed, provide your estimate of the percentage of time in a given year that groundwater flow is in that direction. For example, groundwater in a certain aquifer below your facility may flow in one direction approximately 20 percent of the time while water supply wells are being pumped, but in another direction approximately 80 percent of the time when the water supply well pumps are turned off.*
- Column 5: What is the depth to the top of the saturated zone or aquifer you listed in Column 1? (Specify units)*
- Column 6: What is the depth to the bottom of the saturated zone or aquifer you listed in column 1?*
- Column 7: Does groundwater discharge to a surface water body (for example, is the surface water body fed by springs, or are groundwater level elevations higher than the elevation of water in the surface water body)? Enter "Yes," "No," or "UNK."*
- Column 8: What is the local groundwater (i.e., hydraulic) gradient (ft/ft)?*
- Column 9: If this aquifer or saturated zone supplies water to a public well, private drinking water supply well, irrigation well, livestock well, and/or other well you identified on the map in question B3, indicate in Column 11 which wells marked on the map in Question B3 withdraw water from that aquifer or saturated zone. When designating wells in Column 10, use the numbers you gave the wells when you marked them on the map in Question B3 (e.g., 1W, 2W, 3W, etc.).*

QUESTION B11: GROUNDWATER												
1 Aquifer or Saturated Zone Name	2 Subsurface Layers(s), Unit(s), Formation(s), or Zone(s) from Question B10, Column 1	3 Is ground water potable?	4 Direction(s) of ground water flow		5 Depth to top of saturated zone or aquifer		6 Depth to bottom of saturated zone or aquifer		7 Discharge to surface water?	8 Local ground water (hydraulic) gradient (ft/ft)	9 Wells Supplied by the aquifer	10 Check box if the information is claimed CBI
			Dir	%	Value	Units	Value	Units				
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>
												<input type="checkbox"/>

If you have questions, call the RCRA, Superfund & EPCRA Hotline at 1-800-424-9346.

B12. If you answered "No" in any row of Column 3 in Question B11, please complete the following table.

Instructions for completing table

Column 1: What is the name of the saturated zone or aquifer with non-potable water?

Column 2: Provide the reason why the groundwater is not potable.

QUESTION B12: NON-POTABLE GROUNDWATER		
1 Non-Potable Aquifer or Saturated Zone	2 Reason Groundwater Is Not Potable	Check box if the information is claimed CBI
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

B13. If you answered "Yes" in any row of Column 7 in Question B11, please complete the following table.

Instructions for completing table

Column 1: What is the name of the aquifer or saturated zone with discharges to surface water?

Column 2: Indicate the name of the surface water body. If the surface water body is unnamed, indicate the type of surface water body (e.g., pond, stream) and its location (e.g., 100 feet northeast of impoundment 2A).

QUESTION B13: SURFACE WATER DISCHARGE		
1 Aquifer or Saturated Zone with Discharges to Surface Water	2 Surface Water Body Name or Type and Location	Check box if the information is claimed CBI
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

END OF SECTION B

Please continue with Section C.